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# THE JOURNAL OF POLITICAL ECONOMY

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*MAY—1908*

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RATES ON THE NEW YORK MONEY MARKET,  
1896-1906

The rates at which loans are made in New York City constitute an excellent barometer of money-market conditions and throw light upon many features of the general industrial situation throughout the country. Being the resultant of the many influences affecting the supply and demand of loanable funds, in their fluctuations they register changes in monetary and banking conditions, in the financial operations of the government, in foreign and domestic trade, in the promotion of new enterprises and the reorganization of old ones, and in the general progress of the industrial affairs of the country. On account of better facilities for the adjustment of the supply of money to the demand in most European countries, the rates are not so significant in any other central money market of the world, with the possible exception of the English. In Paris they are very stable, and the ups and downs of industrial affairs are better indicated by the fluctuations in the reserves and the issues of the Bank of France. In Berlin, and even in London, rates change much less frequently than in New York, and many of the influences which cause them to fluctuate there would be indicated in these cities by changes in some of the items in the balance sheets of the Imperial Bank and the Bank of England.

The purpose of the study, the chief results of which are presented in this article, has been to reveal the fluctuations to which

market rates in New York City are normally subject, to discover the chief influences which are responsible for these fluctuations, and to estimate their relative importance. The period 1896 to 1906 was selected for investigation partly because it includes our most recent experiences and partly because it exhibits as well as, if not better than, any other period the normal workings of our financial system.

The published rates on money loaned on the New York market include *two* sets of quotations under the head "Call Loans," namely, call loans at the stock exchange and at banks and trust companies; *seven* under the head "Time Loans," namely, 30-, 60-, and 90-day, and 4-, 5-, 6-, and 7-months; and *three* under the head "Commercial Paper," namely, double name, choice 60- to 90-days, and two varieties of single name, prime 4- to 6-months, and good 4- to 6-months. In the weekly summaries contained in the *Commercial and Financial Chronicle* the minimum and maximum quotations for each class of loans are given, and, in the case of call loans at the stock exchange, the weekly average in addition. A comparison of these quotations reveals some interesting facts.

The call-loan rate at the stock exchange differs from that charged at the same time at banks and trust companies, both in magnitude and range. During the last eleven years its minimum has ordinarily been below that at banks and trust companies by amounts varying from  $\frac{1}{8}$  per cent. to 6 per cent., but most frequently by  $\frac{1}{2}$  per cent. During 72 weeks of the period the minimum quotations at both places were identical. The average rate at the stock exchange during the same period was above the minimum at banks and trust companies by amounts varying from  $\frac{1}{8}$  per cent. to 34 per cent., but most frequently by 1 per cent. These two quotations were identical during 138 of the 572 weeks under investigation. The range of rates at the stock exchange is much greater than at banks and trust companies, being most frequently between 1 per cent. and  $2\frac{1}{2}$  per cent., while at banks and trust companies it was zero during 339 of the 572 weeks of the period, and less than 1 per cent. during 470 weeks. In spite of these

differences, however, the fluctuations of the rates at both places are in general the same, those at banks and trust companies changing less frequently and within a narrower range, but nevertheless following faithfully all the more important movements of the stock-exchange rate.

The five varieties of time loans quoted regularly<sup>1</sup> also often differ from each other in magnitude and range. A comparison of the minimum quotations for the last eleven years reveals the general rule that the rate tends to rise as the length of the loan increases, but to this rule there are many exceptions. For example, in 126 weeks of the period the minimum rates were identical for all classes of time loans. The 90-day and 60-day minimum rates were identical in 308 weeks, the 4-months and 90-day in 320 weeks, the 5-months and 4-months in 374 weeks, the 6-months and 5-months in 501 weeks.

The difference between these quotations rarely exceeds  $\frac{1}{2}$  per cent., and the general rule seems to be that the influence of time in raising the rate grows less as the length of the loan increases. For example, there is apt to be a greater difference between the quotations of 60- and 90-day paper than between 90-day and 4-months. Likewise, there is a greater difference between 90-day and 4-months than between 4-months and 5-months paper.

The range of time loans is much less than that of call loans, being rarely above  $\frac{1}{2}$  per cent. in a given week, and on all classes being zero during the great majority of the 572 weeks investigated. The tendency for the rate to vary during the week grows stronger as the period of the loan increases. In the case of 60-day loans, for example, there were variations in only 162 of the 572 weeks, while in that of 90-day loans there were variations in 190 weeks, and in that of 4-months loans, in 238 weeks.

During the greater part of the last eleven years the rates on all classes of time loans have averaged higher than those on call

<sup>1</sup> Sixty and 90-day and 4-, 5-, and 6-months. Thirty-day and 7-months paper is frequently, but not always quoted, and it was therefore omitted from the calculation.

loans. This was true of the annual averages<sup>2</sup> of these rates for seven of the eleven years and of the monthly averages for 86 of the 132 months of the period. The exceptions to this rule, however, are important, and to their significance I shall refer a little later.

A comparison of the quotations on commercial paper reveals the same kind of differences that are noted in the case of call and

TABLE I

DATE	CALL LOANS		TIME LOANS				
	At St. Exch.	At Banks & Tr. Cos.	60 days	90 Days	4 mos.	5 mos.	6 mos.
	per cent.	per cent.	per cent.	per cent.	per cent.	per cent.	per cent.
1896 to 1900...	3.2	2.9	3.6	3.8	3.9	4.0	4.1
1901 to 1906...	4.2	3.3	4.4	4.4	4.5	4.5	4.6

DATE	COMMERCIAL PAPER		
	Dbl. Name Choice 60 to 90 day	Single Name Prime 4 to 6 mos.	Single Name Good 4 to 6 mos.
	per cent.	per cent.	per cent.
1896 to 1900...	4.1	4.4	5.2
1901 to 1906...	4.7	4.8	5.4

time loans. The minimum rate on double-name paper is usually below that on single-name, but during 254 of the 572 weeks of the period it was identical with that on prime single-name paper. The difference, when one exists, is usually  $\frac{1}{4}$  per cent. The range for single-name paper is usually greater than for double-

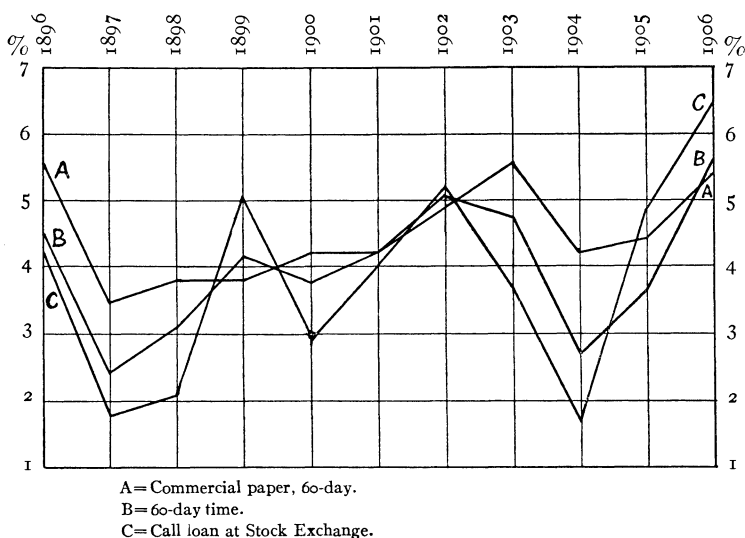
<sup>2</sup> With the single exception of the call rate at the stock exchange, all annual and monthly rate averages referred to in this article have been computed from the minimum weekly quotations summarized for each year in the *Financial Review* published by the William B. Dana Company. In comparisons of rate movements, averages computed from the maximum weekly quotations would have given practically identical results, the range in the case of the different rates differing very little in magnitude. In the case of the call rate at the stock exchange the monthly and annual averages are based upon the average weekly rates quoted in the *Financial Review*. After careful comparisons with both the minimum and maximum rates at the stock exchange and at banks and trust companies, this quotation appeared to be the best representative of this group of rates.

name and the fluctuations are more frequent. As compared with the rates on time loans, running for the same period, that on commercial paper, as a rule, averages higher. The exceptions to this rule correspond in time to those mentioned above in which the call-loan rate averaged above that on 60-day time.

The general trend of all classes of rates throughout the period has been upward. This is clearly shown by reference to Table I, in which are indicated the average of the rates for each class of loans for the periods 1896 to 1900 and 1901 to 1906.

CHART I

ANNUAL AVERAGES OF TYPICAL RATES FOR THE PERIOD 1896-1906



The above diagram, on which are represented the annual averages of typical rates in each class, shows that the upward trend of call and time loans was interrupted in 1897, 1900, 1903,<sup>3</sup> and 1904, and that of commercial paper in 1897 and 1904.

From the point of view of money rates, 1906 was the *most* peculiar year of the eleven investigated. The annual average for call loans was the highest of any year. The same thing was true

<sup>3</sup> In 1903 the rate on 6-months time loans did not fall with the other rates of its class.

of all the time loans, except the 6-months, which was exceeded only in the year 1896. The average rate on commercial paper in 1906 was exceeded only by the averages of 1896 and 1903.

A comparison of the monthly averages shows those for 1906 to be the highest of the eleven years in January, February, April, May, August, and September. The March average for 1906 was exceeded only by that of 1899, the June average only by those of 1899 and 1901, the July average only by those of 1902 and 1903, the October average only by those of 1896, 1899, and 1902, the November average only by that of 1896, and the December average only by those of 1899 and 1905. Substantially the same results are shown by a comparison of the monthly averages for 60-day time loans. The year 1906 had the highest average for this class of paper in the months of April, September, November, and December. The January, February, August, and October averages of 1906 were exceeded only by those of 1896; the May, June, and July averages only by those of 1902, and the March average only by that of 1903.

A study of the range of fluctuations of the call-loan rate at the stock exchange also marks 1906 as a banner year. In only 16 weeks was the range  $2\frac{1}{2}$  per cent. or less, while in every other year of the period it was below this point during from 21 to 51 weeks. The range was above  $2\frac{1}{2}$  per cent. in 1906 in 36 weeks, above 5 per cent. in 21 weeks, and above 10 per cent. in 10 weeks. No other year in the period under consideration can approach this record.

A study of the monthly, as distinguished from the annual, averages clearly reveals certain seasonal fluctuations. These are indicated on Chart II, following, which represents the rates for each month averaged for the entire eleven years.

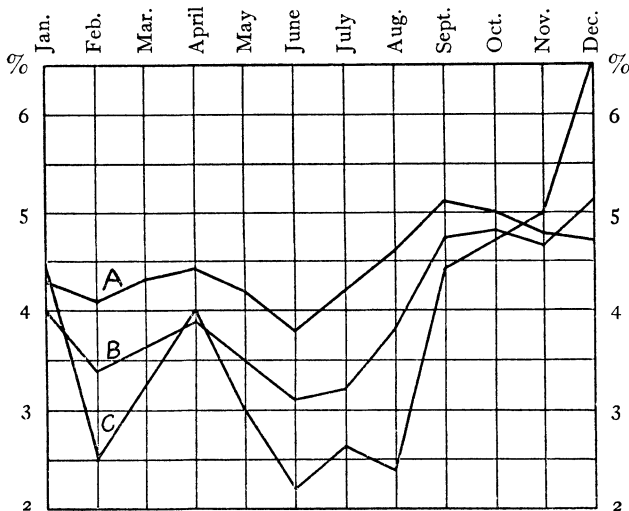
It will be observed that for all the rates these eleven-year averages indicate a decline at the beginning of the year, a rise in the spring, another decline in the early summer and a heavy rise in the late summer and early fall. With the exception of the call rate, which rose steadily from September to the end of the year, they also indicate a reaction from the fall rise in October and November, followed by a sharp rise in December, in the case of

the time rates, and by a still further decline in the case of the commercial-paper rates.

A more detailed study of each year confirms the regularity of these seasonal fluctuations. For example, with the exception of 1899,<sup>4</sup> all the rate averages fell in January and February of each year. To the rule of a spring rise there were exceptions only in 1896 and 1904. The fall in rate averages in the early summer

CHART II

MONTHLY AVERAGES OF TYPICAL RATES FOR THE PERIOD 1896-1906



A = Commercial paper, double name 60-day.

B = 60-day time.

C = Call loan.

occurred regularly each year. As a rule, it continued through May and June, but in 1901 and 1902 the spring rise in all the rates continued into May, so that the June average alone showed a fall, and the same thing happened to the call and time rates in 1904 and to the commercial-paper rate in 1899. In 1903, in the case of all the rates, the fall continued through May only, the June average being higher, and in 1905 the same was true of the call and time rates.

<sup>4</sup> In 1899 the call-rate average rose in January and fell in February, and the time and commercial-paper rate averages fell in January and rose in February.



Regarding the upward movement in the late summer and early fall the monthly averages indicate some irregularities. Ordinarily it began in July and continued through September. Sometimes, however, as in 1897, 1900, 1904, 1905, and 1906, the early summer decline continued into July, making the average for that month, in the case of some or all of the rates, lower than in June. In August the call and time rates (one or both) fell in 1899, 1901, 1902, 1903, 1904, and 1905. For all the rates the upward movement continued through October in 1900 and 1904, and to the end of the year in 1899 and 1905. The call and time rates continued to rise throughout October in 1896 and to the end of the year in 1904.

The movements of rates during the last quarter of the year do not exhibit the same degree of uniformity and regularity as in the other seasons. A reaction from the high rates of the autumn was the rule.<sup>5</sup> However, the averages of none of the rates fell in the last quarter of 1899 or of 1905, and neither the call- nor the time-rate averages fell in the last quarter of 1903 or of 1904. The average call rate also rose steadily from August to December of 1900. The time within the quarter at which this reaction takes place is not the same in the different years and varies considerably between the different rates in the same year. Most frequently it happened in October, but often in November.<sup>6</sup> In 1896 the averages of all the rates fell in November and December, the decline continuing through February of the following year. A rise in December occurred in the average of the call rate each year except 1896, and in that of the time rates each year except 1896 and 1903. The commercial-paper rate average rose in December only in the years 1890, 1902, 1904, and 1905.

In the investigation of the causes of the fluctuations of rates,

<sup>5</sup> It occurred in eight of the eleven years in the call and time rates and in nine of the eleven years in the commercial-paper rate.

<sup>6</sup> The call-rate average fell in October in 1898, 1901, 1902, and 1906, and in November in 1896, 1897, and 1902; the time-rate averages fell in October in 1898, 1901, 1902, and 1906, and in November in 1896, 1897, and 1900; the commercial-paper rate average fell in October in 1897, 1901, 1903, and 1906, and in November in 1896, 1897, 1900, 1902, and 1904.

and the influence they exert upon each other, the average call-loan rate at the stock exchange, the minimum rate on 60-day time loans, and that on double-name 60- to 90-day commercial paper have been selected as typical each of its class. A detailed comparison by means of charts indicates that the fluctuations of the other rates in each class are almost identical with these, and that the conclusions to be drawn from a study of these three will apply equally well to the others.

In all their principal and in most of their minor fluctuations these three rates move together.<sup>7</sup> In degree of change the call-loan rate was decidedly the champion, the 60-day time rate, as a rule, occupying second, and the commercial-paper rate third place. The cases in which these statements do not hold true are decidedly exceptional. These facts point clearly to influences common to all the rates as the chief causes of their fluctuations. Before considering these, however, some evidence should be noted indicative of the influence of the call-loan rate upon the others.

The reader's attention has already been called to the fact that while, as a rule, the call-loan rate averaged the lowest, and the commercial-paper rate the highest of the three, many times during the last eleven years this order was exactly reversed. For the years 1899, 1902, and 1906 the annual average of the call-loan rate was the highest and that of commercial paper the lowest of the three. The same was true of the monthly averages

<sup>7</sup> The monthly averages of all three rates moved up and down together except during 32 months of the period, not counting the months, of which there were 20, in which some one of the rates did not exhibit any change. These months were distributed throughout the period as follows:

Months in Which Rates Did Not Move Together	Total	Months in Which the Average of Some One of the Rates Remained Unchanged	Total	Grand Total
1896, April.....	1	October.....	1	2
1897, April, July, October.....	3	May, June, Aug., Nov., Dec.....	5	8
1898, Sept., Oct., Nov., Dec.....	4	July, August.....	2	6
1899, Jan., Feb., May, Aug.....	4	.....	0	4
1900, July, Aug., Nov., Dec.....	4	June.....	1	5
1901, March, August, November.....	3	.....	0	3
1902, August, November.....	2	March, April.....	2	4
1903, Aug., Sept., Oct., Dec.....	4	April.....	1	5
1904, May, August, November.....	3	February, March, July.....	3	6
1905, April, June, July.....	3	February, May, August.....	3	6
1906, July.....	1	November, December.....	2	3
	32		20	52

for 27 of the 132 months of the period. The explanation of these exceptional cases is to be found apparently in the antics of the call-loan rate at the stock exchange. When that rate took a sudden jump it usually carried the other rates with it, but ordinarily it carried the time rates farther than and above the commercial-paper rate.<sup>8</sup>

The causes of the rate fluctuations which have been noted must be sought chiefly in the influences which have affected the relations between the supply of and the demand for loanable funds on the New York market. The best available key to these influences is the surplus reserves<sup>9</sup> of the Associated Banks. They are the nearest approximate measure of the amount of the loan fund at any given time, and their average weekly amounts are available for the entire period under consideration.

Both the total money holdings of the banks and the surplus reserves performed four major and several minor fluctuations each year during the period under discussion. They regularly decreased from the beginning of February to the end of the first week in April; increased from that date to the end of July; decreased again to the end of the first week in November, and then increased to the end of January. Among the minor movements the most important were: an increase in the month of October; a fall in December; and downward movements during the early parts of the summer months. These latter were some-

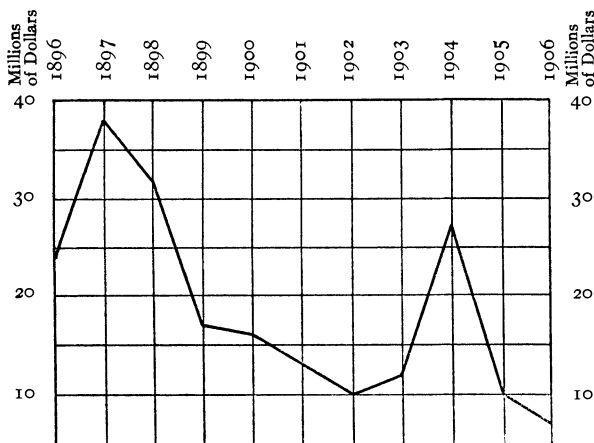
<sup>8</sup> Typical instances of this sort may be found in October, 1896, when the average rate on call loans was 9.8 per cent., as compared with 5.6 per cent. in September; in September, 1898, when the rate had risen from an average of 1.5 per cent. in August to 3.4 per cent. in September; in December, 1900, when the average call-loan rate was 5.1 per cent. as compared with 4.9 per cent. in November; and indeed in each of the 27 months except 2, January, 1902, and January, 1906. In both of these cases the call-loan rate was falling from a previously high level, but had not gone far enough to carry the 60-day rate below that on commercial paper. These two instances, therefore, do not constitute real exceptions to the rule.

<sup>9</sup> Notwithstanding the magnitude of the loans of trust companies, banks which do not belong to the Clearing-House Association, great corporations and private persons, the Associated Banks still hold the bulk of the banking reserves of New York City. Since the surplus reserves are the amount of their total money holdings in excess of the legal minimum (25 per cent. of deposits), multiplied by four they measure the amount of the loan fund of these banks.

times great enough approximately to offset the effects of the normal summer rise, the line on the chart during these years waving up and down without much if any tendency to rise. Many other fluctuations occurred, but they do not exhibit any marked degree of regularity.

Considering the movement of the surplus reserves throughout the entire period, a marked tendency to decrease in magnitude is observable. This is evident from Chart III, following, on which the annual averages are graphically represented.

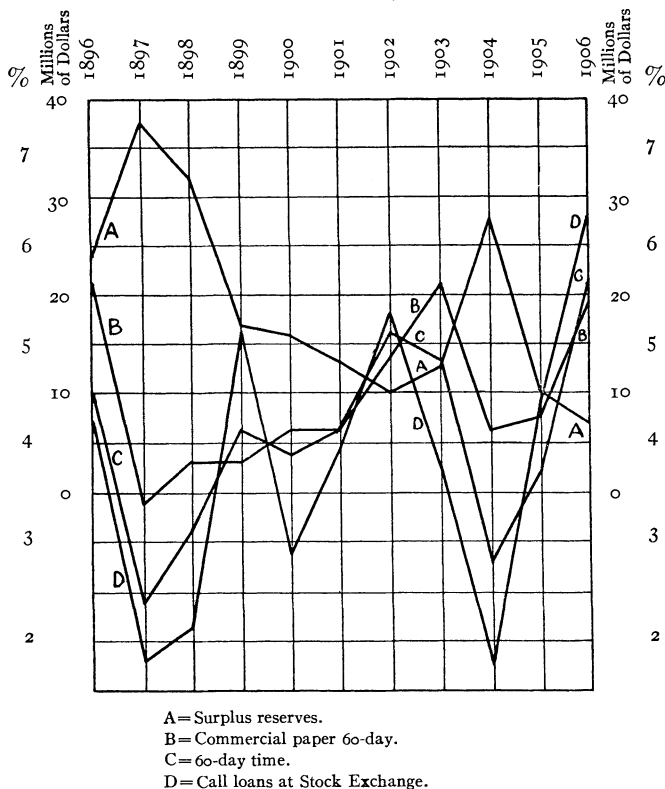
CHART III  
ANNUAL AVERAGES OF SURPLUS RESERVES FOR PERIOD 1896-1906



A comparison of these fluctuations with those of the rates described on pp. 278-9 reveals a remarkable harmony in both their major and minor movements. The trend of rates has been decidedly upward in February and March, downward during the summer months, upward again in the fall, and downward in the winter months. They have fallen quite regularly in October and risen in December. The rule clearly is that they rise when the surplus reserves fall and vice versa. To this rule the annual averages, represented on the accompanying Chart IV, reveal one exception each in the cases of the call and the 60-day time rates, namely in 1900, and three in the case of the commercial-paper

rate, namely in 1899, 1901, and 1903 respectively. The monthly averages show a larger percentage of exceptions to the rule, and the weekly averages a still larger. The figures for the monthly averages are: for the call rate 37, for the 60-day time rate 38,

CHART IV  
ANNUAL AVERAGES OF SURPLUS RESERVES AND TYPICAL RATES FOR  
PERIOD 1896-1906

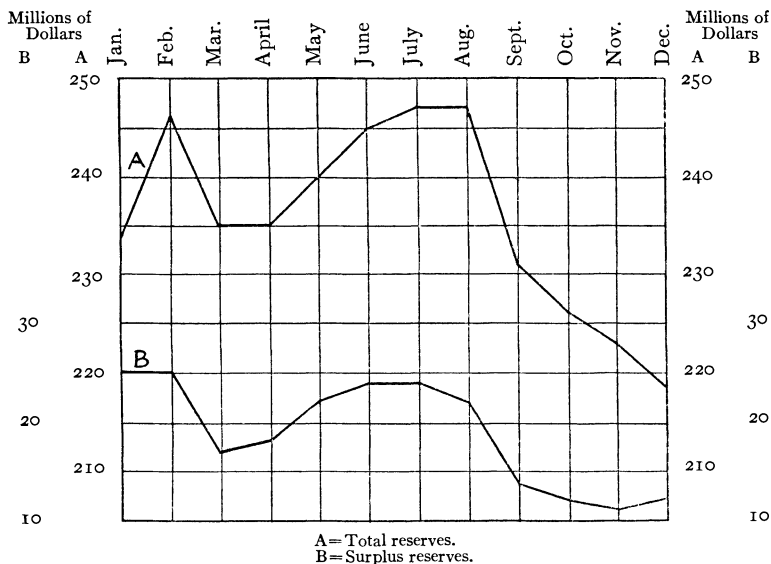


and for the commercial-paper rate 45, out of a total of 132 months, or percentages respectively of 28, 28.8, and 34. For the weekly averages the percentages are respectively 33.2, 40.6, and 42.5. For all the rates the percentage of exceptions is lowest in the month of January.<sup>10</sup>

<sup>10</sup> It should be noted that these exceptions occur, as a rule, in the minor rather than the major fluctuations of both the rates and the surplus reserves.

An analysis of the causes of the movements of the surplus reserves is the next step needed for the revelation of the influences which cause fluctuations in rates. Among these, the chief is the magnitude of the total money holdings of the banks. This is evident from the fact that the direction of the fluctuations of the surplus and the total reserves, as revealed by their weekly

CHART V  
MONTHLY AVERAGES OF TOTAL AND SURPLUS RESERVES FOR  
PERIOD 1896-1906



averages, was identical in 466 of the 571 weeks of the period; as revealed by their monthly averages, in 114 of the 132 months of the period,<sup>11</sup> and as revealed by the monthly averages throughout the period, in seven of the twelve months, namely, in all except February, April, July, August, and December. (See Chart V.)

They show the presence of influences other than the money holdings of the banks. The fact that they tend to disappear in the averages for long periods indicates the fundamental character of the surplus reserves as a rate-determining force.

<sup>11</sup> The exceptional months were: July, August, December, 1897; November, 1898; February, April, May, June, July, 1901; February, April, 1903; December, 1904; February, April, October, 1905; February, September, December, 1906.

The causes of fluctuations in the total money holdings of the Associated Banks are the movements of currency to and from the interior, to and from local territory, the operations of our independent treasury system, and imports and exports of gold. In order approximately to determine the relative importance of these influences, the weekly net gains and losses to these banks from each of these movements were calculated, and their relative magnitudes compared.<sup>12</sup> The results are presented in the accompanying Table II. This indicates that in their effect upon the

TABLE II

COMPARISON OF THE NUMBER OF WEEKS IN EACH YEAR, EACH MOVEMENT OCCUPIED FIRST, SECOND, THIRD, AND FOURTH PLACES IN INFLUENCE ON THE RESERVES<sup>13</sup>

	FIRST				SECOND				THIRD				FOURTH			
	Int.	S. Tr.	Ext. G.	Local	Int.	S. Tr.	Ext. G.	Local	Int.	S. Tr.	Ext. G.	Local	Int.	S. Tr.	Ext. G.	Local
1896.....	24	11	9	4	16	16	8	9	7	13	8	19	1	7	11	12
1897.....	28	14	2	7	17	17	7	11	8	14	3	28	0	5	4	4
1898.....	18	15	8	10	17	14	8	13	14	9	8	19	2	10	7	8
1899.....	18	14	3	17	21	11	4	15	11	19	5	16	2	7	14	3
1900.....	23	11	5	13	15	16	8	13	11	14	6	18	3	8	5	5
1901.....	22	10	5	15	12	16	2	16	13	17	7	10	0	6	13	5
1902.....	15	14	3	20	20	10	3	17	13	22	3	12	1	4	17	1
1903.....	24	8	5	14	15	17	6	15	12	18	3	18	0	8	14	5
1904.....	19	11	6	17	21	15	6	11	9	20	12	12	4	5	14	13
1905.....	24	11	1	16	18	17	4	12	9	17	6	18	1	6	11	4
1906.....	18	12	2	20	15	18	7	12	14	13	6	15	3	6	21	3
Total....	233	131	49	153	187	167	63	144	121	176	67	185	17	72	131	63

<sup>12</sup> For this calculation the statistics published by the *Commercial and Financial Chronicle* were employed. These statistics are incomplete, and include institutions which do not belong to the Clearing-House Association. It should also be noted that the *Chronicle* combines in its report the external gold and the sub-treasury movements, but it publishes separately the imports and exports of gold at New York City. It was necessary, therefore, from these data to calculate the subtreasury and the local movements. The conclusions based upon such imperfect data are, of course, presented as tentative only and subject to correction in the light of more accurate statistics. It is believed, however, that the order of the magnitudes of the four movements, with the possible exception of the local and subtreasury, are correctly indicated.

<sup>13</sup> The method of constructing this table may be illustrated by the following example: For the week ending January 3, 1896, the reserves increased \$1,500,000, the banks gained \$6,000,000 from the interior and \$2,000,000 from the sub-treasury, and lost \$4,000,000 to foreign countries and \$2,500,000 to local territory. The interior currency movement having contributed \$6,000,000 to the

reserves of the Associated Banks the interior currency movement was first in importance, the movement between the banks and their customers in New York City and its immediate vicinity second, that between the banks and subtreasury third, and that between the banks and foreign countries fourth. The degree of importance of each of these movements is approximately indicated by the figures 233, 153, 131, and 49, representing the number of weeks respectively each contributed most toward the change in the magnitude of the reserves. The pre-eminent importance of the internal currency movement is still further emphasized by the fact indicated in the table, that this movement also occupied second place more frequently than any of the others. Of the 571 weeks covered by the investigation it occupied either first or second place during 420 weeks, the subtreasury movement during 298, the local movement during 297, and the external gold movement during 112.

The accompanying Table III indicates the relative importance of each of these movements for each month in the year during the period under discussion: It shows that the internal currency movement occupied first place in relative importance in every month of the year except March, when the influence of the subtreasury was greatest; that the local movement was second in importance in every month except May, August, and November, when the subtreasury movement occupied that place. The external gold movement was least important of the four in every month except May, when the local movement occupied that place.

In degree of importance the local and subtreasury movements do not greatly differ. During the first three years of the period the subtreasury movement was the greater of the two in magnitude, and since that time, every year without exception, the local movement has been greater.

reserve movement, as compared to \$4,000,000 for the external gold, \$2,500,000 for the local and \$2,000,000 for the subtreasury, in the table it was accorded first place for that date, the external gold movement second, the local movement third, and the subtreasury movement fourth. The figure "24" opposite the year 1896 in the first column means that the interior currency movement occupied first place in this sense in 24 of the weeks of that year.



TABLE III

NUMBER OF WEEKS EACH MONTH, DURING THE PERIOD 1896-1906, EACH OF THE CURRENCY MOVEMENTS MENTIONED OCCUPIED FIRST, SECOND, THIRD, AND FOURTH PLACE IN INFLUENCE ON THE RESERVES

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
<i>First—</i>												
Interior.....	37	17	9	18	20	18	20	19	21	17	18	19
Subtreasury.....	0	10	22	11	11	10	8	14	10	11	13	11
External Gold.....	0	1	3	6	10	7	2	4	3	6	4	3
Local.....	9	15	13	13	6	12	18	12	13	13	12	17
<i>Second—</i>												
Interior.....	8	20	21	16	17	18	11	17	14	13	15	17
Subtreasury.....	20	10	13	16	17	11	15	17	19	10	12	17
External Gold.....	5	5	3	2	13	5	6	1	3	12	3	5
Local.....	14	9	10	12	11	11	15	12	11	12	16	11
<i>Third—</i>												
Interior.....	2	6	13	12	9	8	15	10	8	15	11	12
Subtreasury.....	18	18	9	11	11	17	15	12	16	17	14	16
External Gold.....	10	6	3	6	8	5	2	6	3	5	7	5
Local.....	6	11	18	14	21	17	13	17	19	8	14	15
<i>Fourth—</i>												
Interior.....	0	1	2	1	1	1	0	1	4	2	2	2
Subtreasury.....	7	4	3	4	17	9	7	2	1	6	7	5
External Gold.....	15	12	11	11	6	4	12	12	14	10	10	14
Local.....	6	3	2	6	10	4	3	6	4	9	4	6

In order to supplement the study of these tables, another was prepared showing the number of times each month the Associated Banks gained from and lost to the interior, local territory, the subtreasury, and foreign countries. This table shows that, as a rule, the Associated Banks gained from the interior from January to August and in November and December, and lost to it in September and October. They gained from local territory in January, April, and October, and lost to it in the other months, the greatest relative number of weeks of gain being in January and October, and of loss in February, March, and November. As a rule, the banks gained from the subtreasury in January and lost to it in February, March, September, and December. In the other months of the year, the number of weeks in which there were gains and losses more nearly approximated equality, there being gains in a majority of the weeks of April and October, and losses in a majority of the weeks of May, June, July, August, and November. The external gold movement was most important in its influence in May, June, and October. The banks gained

from this source in a majority of the weeks of August, September, October, and November, and lost in a majority of the weeks of the other months of the year. The difference between the number of weeks in which there were gains and that in which there were losses was largest in the months of January, September, October, May, June, and July.

With reference to the major movements of the reserves, described on pp. 282-85 our analysis shows that the spring decline has been generally due to losses to the New York subtreasury and to local territory, and the others to interior currency movements. The break in the autumn decline in October was due usually to a combination of gains from local territory, the subtreasury, and foreign countries, and that in December, in the winter rise, was due to losses to the subtreasury, frequently supplemented by losses to local territory and to foreign countries.

The fact that the movements of the surplus reserves, as revealed by weekly and monthly averages, did not follow those of the total money holdings in 115 of the 571 weeks and in 18 of the 132 months of the period, and that, as revealed also by weekly and monthly averages, the rates did not respond to the surplus reserves in a fairly large percentage of the weeks and months investigated, indicates the presence in the money market of influences other than those connected with the movements of the total money holdings of the banks. A partial measure of the importance of these influences is indicated by a comparison of the relative magnitudes of rates and surplus reserves at different times. Table IV shows the results of such a comparison of the annual averages. It will be observed that the amount of the rise or fall of the rates caused by a change of a million dollars in the surplus reserves has varied greatly at different times and at the same time between the different rates. Omitting the cases in which the change in the rate averages was in a direction opposite to the one warranted by the surplus reserves, in the case of the call rate the variation was between 0.04 per cent. in 1898 and 1 per cent. in 1903; in that of the 60-day time rate between 0.05 per cent. in 1905 and 0.8 per cent. in 1906, and in that of the

TABLE IV  
TABLE SHOWING RELATION BETWEEN THE MAGNITUDES OF CHANGES IN THE SURPLUS RESERVES AND THE RATES

Date	SURPLUS RESERVE ANNUAL AVERAGE			CALL LOAN RATE ANNUAL AVERAGE			60-DAY TIME RATE ANNUAL AVERAGE			60-DAY CHOICE DOUBLE NAME COM- MERCIAL PAPER RATE ANNUAL AVERAGE		
	Total Mill's \$	Direction of Change	Change of Mill's \$	Total	Direction of Change	Change of Per cent.	Effect upon Rates of One Million Dollar Change in Sur. Res.	Total	Direction of Change	Change of Per cent.	Effect upon Rates of One Million Dollar Change in Sur. Res.	
1896.....	23.9			4.2	Fall	2.4	.16%	4.5	Fall	2.1	.14%	5.6
1897.....	38.1	Rise	14.2	1.8	Rise	.3	.04	2.4	Rise	.7	.1	3.4
1898.....	31.7	Fall	6.4	2.1	Rise	2.9	.19	3.1	Rise	1.0	.06	3.7
1899.....	17.1	Fall	14.6	5.0	Fall	2.1	*	4.1	No ch'ng	.0	*	3.7
1900.....	16.2	Fall	.9	2.9	Fall	1.1	*	3.9	Rise	.5	*	4.2
1901.....	13.9	Fall	2.3	4.0	Rise	1.1	.47	4.1	No ch'ge	.0	.08	4.2
1902.....	10.5	Fall	3.4	5.2	Rise	1.2	.35	5.1	Rise	.6	.3	4.8
1903.....	12.0	Rise	1.5	3.7	Fall	1.5	1.00	4.8	Rise	.8	.3	4.8
1904.....	27.5	Rise	15.5	1.7	Fall	2.0	.13	2.8	Fall	1.5	.12	5.6
1905.....	10.2	Fall	17.3	4.4	Rise	2.7	.15	3.7	Rise	.1	.05	4.1
1906.....	7.9	Fall	2.3	6.4	Rise	2.0	.87	5.6	Rise	1.2	.8	4.2
												5.4

\* Figures are omitted in these cases either because there was no change in rates or because the rate movement was in the direction opposite to that warranted by the movement of the reserves.

commercial-paper rate between 0.005 per cent. in 1905 and 0.55 per cent. in 1900. The widest difference in the effect on the different rates was in 1903, when it was 1 per cent. in the case of the call rate, and 2 per cent. in that of the 60-day time rate.

The degree of sensitiveness of the rates to changes in the surplus reserves might be expected to have some connection with the absolute height of the latter, being greatest when they are relatively low, and vice versa. In general this seems to be the case with the call and time rates. In 1902, 1903, and 1906, when the average reserves were low, the effect of changes, as indicated above, was relatively great, and in 1897, 1898, and 1904, when they were high, the effect was much less. To this rule, however, 1905 is a marked exception, the surplus reserves that year averaging very nearly the same as in 1902, while the effect of a change of a million dollars on the call rate in the latter year was 0.35 per cent. and in the former 0.15 per cent., and on the time rate 0.3 per cent. and 0.05 per cent. respectively. Furthermore, at all stages of height of the surplus reserves the figures representing their effect upon the rates are sufficiently different to indicate a wide field for the operation of other influences. The commercial-paper rate does not seem to be sensitive to the magnitude of the surplus reserves in the same degree as the others. In 1906, when the average surplus reserves were the lowest of the period, the effect of a million dollar change upon this rate was relatively great, but in 1902 and 1903, when the average surplus reserves were low, the effect per million dollars of change was not so great as in other years when the surplus reserves were much higher.

Another indication of the importance of the influences now under consideration is furnished by Table V, which shows the rates at the dates when the reserves were below the legal requirement and when they were less than two million dollars above it. According to the first part of the table, in weeks during which the average reserves have been below the legal requirement the call-rate average has been as low as 7 per cent. and as high as 20 per cent., the 60-day time-rate average as low as 5 per cent. and as high as  $8\frac{1}{2}$  per cent., and the commercial-paper rate average

as low as 5 per cent. and as high as 6 per cent. The second table indicates call-rate averages varying from  $4\frac{1}{2}$  per cent. to 25 per cent., when the average surplus reserves were near zero, time-rate averages varying from  $5\frac{1}{2}$  to  $7\frac{1}{2}$  per cent., and commercial-paper rate averages varying from  $4\frac{3}{4}$  per cent. to 6 per cent.

TABLE V

RATES WHEN SURPLUS RESERVES WERE ZERO, TOTAL RESERVES BEING LESS THAN 25 PER CENT. OF DEPOSITS					RATES WHEN SURPLUS RESERVES WERE VERY CLOSE TO ZERO				
Date	Call Loans	60-Day Time	Com'l Paper	Am't of Defic. Mill's \$	Date	Call Loans	60-Day Time	Com'l Paper	Am't of Sur. Res. Mill's \$
1899					1899				
Nov. 3	10	$5\frac{1}{2}$	5		Sept. 15	6	$5\frac{1}{2}$	$4\frac{3}{4}$	.3
Nov. 10	9	6	5		Oct. 6	12	6	$5\frac{1}{2}$	.6
Nov. 17	7	$6\frac{1}{4}$	$5\frac{1}{2}$		Oct. 13	7	—	$5\frac{1}{2}$	1.2
1902					1902				
Sept. 19	10	—	$*5\frac{1}{2}$	1.6	Sept. 12	8	6	$5\frac{1}{2}$	.7
1905					Oct. 3	14	—	$*6$	1.8
Nov. 10	8	6	5	2.4	Oct. 10	11	—	$*6$	1.5
Dec. 8	10	7	$5\frac{1}{2}$	1.2	1903				
1906					Mar. 6	$4\frac{1}{2}$	$5\frac{1}{2}$	5	.7
Apr. 6	15	5	$5\frac{1}{4}$	2.6	Mar. 13	$5\frac{3}{4}$	6	—	1.0
Sept. 7	20	$7\frac{1}{2}$	6	6.6	1906				
Nov. 9	8	7	6	1.5	Jan. 5	25	6	5	.6
Dec. 8	18	8	6	6.7	Nov. 30	6	$7\frac{1}{2}$	6	1.4
Dec. 15	12	$8\frac{1}{2}$	6	1.7					

\* Nom.

A complete analysis of the influences, the presence and importance of which are revealed by these figures, is beyond the scope of this paper. A few of them only will be indicated.

It is quite impossible by statistical or other processes to segregate and measure the various elements which together constitute the demand for loans. Every branch of industry, doubtless, contributes its quota, but there is no way of determining accurately how large this quota is or precisely how it affects the open market rates here under consideration. In the case of one of these elements, however, namely, the stock-market demand, it is desirable that we should approximate a measurement as closely as possible, since public opinion and current discussion apparently agree in assigning it a very great, if not a dominating, influence on the New York market.

Unfortunately, in the reports of the Associated Banks loans are not classified, and it is, therefore, impossible to compare changes in rates from week to week with changes in the magnitude of loans to stock exchange operators. We may, perhaps, arrive at similar results, however, by a round-about process.

The comptroller of the currency classifies the loans of the national banks of New York City for one date each year, and thus enables us to determine approximately what percentages of the total loans of these banks, on the average, are subject to stock-market conditions. We shall not do great violence to truth if we assume that these figures represent approximately the state of affairs for all the Associated Banks.<sup>14</sup> For each year of the period here under consideration the percentages of total loans belonging to the two classes secured by stock-exchange collateral were as follows:

TABLE VI

PERCENTAGES OF TOTAL LOANS BELONGING TO TWO CLASSES SECURED BY STOCK EXCHANGE COLLATERAL FOR EACH YEAR OF THE PERIOD 1896-1906

Date	<i>On Demand</i> Secured by Stocks, Bonds, or other Personal Security	<i>On Time</i> Secured by Stocks, Bonds, Personal Securities, or Mortgages, or other Real Estate Security	Total
Oct. 6, 1896.....	32 per cent.	19 per cent.	51
Oct. 5, 1897.....	35	19	54
Sept. 20, 1898.....	38	20	58
Sept. 7, 1899.....	42	26	68
Sept. 5, 1900.....	44	22	66
Sept. 30, 1901.....	44	21	65
Sept. 15, 1902.....	43	22	65
Sept. 9, 1903.....	44	17	61
Sept. 6, 1904.....	48	18	66
Aug. 25, 1905.....	47	19	66
Sept. 4, 1906.....	41	21	62
Yearly Average.....	41.6	20.3	62

<sup>14</sup> On the average, about two-thirds of the national banks of New York City belong to the association, and they constitute about two-thirds of its total membership. January 1, 1906, the total number of members of the association was 54, of which 38 were national and 16 state institutions. In 1904 the total membership numbered 53 banks, of which 36 belonged to the national and 17 to the state system. These proportions have not varied greatly since the national banking system reached maturity.

If these figures represent average conditions throughout the period the percentage of call loans on stock-exchange collateral to total loans is normally in excess of 40, that of time loans secured in the same way, in excess of 20, and that of the two classes of loans combined, in excess of 60. It is probably safe to say, therefore, that, on the demand side, at least one-half the loans of the New York City banks are normally subject to stock-market conditions. In order to determine how rate movements may have been affected by changes in these conditions, a comparison of the statistics of the total volume of stock sales with the averages of the call-loan rate has been made with the following results:

1. In 68 of the 132 months the total value of the stocks sold and the averages of the call-loan rates increased and decreased at the same time, while in 64 of the months they failed to correspond in their movements; that is, one increased while the other decreased, or one remained stationary while the other increased or decreased;

2. In 1899, 1904, and 1905, the number of months in which their movements were the same and in which they were different were equal (six and six); in 1900, 1901, 1902, and 1906, they were the same in a majority of the months; and in 1896, 1897, 1898, and 1903, they were different in a majority of the months;

3. In every month except May, October, and December, the number of years in which they were the same and in which they were not the same were respectively five and six or six and five; in May they were respectively four and seven, in October seven and four, and in December eight and three.

We may not assume that whenever the movement up or down of the call-rate average corresponded in time with that of the volume of transactions on the stock exchange the latter was the cause of the former. In 46 of the 68 months in which this was true the fluctuations of the reserves would equally well have explained the movements of the call rate. The true interpretation of these statistics would seem rather to be that the demand for loans on the stock exchange at all times constitutes a large

percentage<sup>15</sup> of the total demand, but that about half of the time its influence on rates is more than counterbalanced by other influences; that in about two-thirds of the instances in which the call rates move in the direction indicated by the stock-market demand, the reserves have contributed to the movement in at least an equal degree; and that only occasionally, according to the above statistics in 22 of the 132 months, has this demand actually determined the direction of the rate movement.

These conclusions are confirmed by a more detailed study of the statistics, especially for those months in which they point to the stock-exchange demand as the determining influence. The percentage of change in the volume of transactions on the stock exchange was very high in most of these months, in only six being less than 25 per cent. and in four being in excess of 100 per cent. Changes of such magnitude could hardly fail to modify the demand for loans to such an extent as to change the rate unless very powerful influences were working in opposition.

In order to do complete justice to the influence of the New York Stock Exchange on rates, account must be taken of the intensity as well as of the magnitude of the demand for loans which it occasions. Many times during the last eleven years, when banks have been obliged to call their loans, the needs of stock brokers have been so pressing as to force rates to very great heights.<sup>16</sup> These occasions have usually, though not always, been marked by excessive activity on the exchange, but the magnitude of the change in rates in such cases was greatly in excess of what the sales would normally have produced. The initial cause of the change in rates in these cases has been quite as often off as on the stock exchange. For example, the call of loans in the

<sup>15</sup> It will not, of course, do to assume that all loans on stock-exchange collateral are made by operators on the stock exchange and that the funds thus borrowed are used in the purchase of stocks. In the light of the above statistics, however, it is probably safe to assume that a large percentage of such loans are so used.

<sup>16</sup> The call rate rose to 127 per cent. on October 29, 1896; to 96 per cent. on November 2, 1896; to 186 per cent. on December 18, 1899; to 75 per cent. on May 9, 1901; to 125 per cent. on December 28, 1905; in 1906 to 60 per cent. on January 2, to 30 per cent. on April 5 and 6; to 40 per cent. on September 5, and to 45 per cent. on December 31.



latter part of October and the early part of November, 1896, was caused by a money stringency produced by the free-silver agitation just preceding the presidential election of that year. The initial movement toward high rates in December, 1905, and in January, April, September, and December, 1906, came from the supply rather than the demand side of the market. On the other hand, the initial cause of the rate movements in December, 1899, and May, 1901, was stock-market panics. In all these cases, however, the excessive height of the rates must be attributed to the high pressure to which stock-market operators were subjected.

The element of risk is always operative on the New York market and must be considered in the explanation of rates. It is doubtless mainly responsible for the difference between the rates on 60-day, double-name, choice commercial paper, and those on 60-day loans secured by stock-exchange collateral; also for the difference in the rates on double-name and single-name commercial paper; but at times it is also a factor in individual and general rate movements. Such events as proposed and actual changes in the standard of value or other elements of the currency, special financial operations of the government, wars and rumors of wars, presidential elections, etc., change the scope and magnitude of its influence and cause fluctuations in rates not warranted by the condition of the reserves or other influences. The success of the government loan for the replenishment of the gold reserve, in February, 1896, showed itself in a lowering of the rates in the call and time markets at a time when the surplus reserves were rapidly falling. The presidential election in November of the same year, in which the question of the standard of value was at stake, raised rates to a great height in the week preceding the election and lowered them greatly in the week following, quite regardless of the course of the surplus reserves, which in both weeks would have warranted movements exactly contrary to those which actually took place. The presidential election of 1900 also affected the money market. The rate on call loans advanced to 25 per cent. just before the election, and after the result was known the offerings of hoarded money

were so great as to lower considerably the average rate for commercial paper for the week ending November 9, notwithstanding the fact that the average of the surplus reserves for that week was considerably lower than in the one preceding. During the weeks ending April 16 and 23,<sup>17</sup> 1898, the fluctuations of rates were due to the excitement and apprehension caused by the preceding events and the outbreak of the Spanish War. Whenever stock-market values are fluctuating widely, banks not only demand larger margins and are more discriminating in the selection of collateral, but they often also raise rates on this class of loans. Every stock-market flurry of the last decade furnishes examples.

Besides the various influences comprehended under the terms supply, demand, and risk, it is possible that at times a monopolistic element has entered the market. The great height attained by the call rate in periods of extreme stringency seems to point to the presence of this element. When the majority of the banks have practically withdrawn from the market, it is possible for the few individuals, corporations, and financial institutions still remaining to resort to a close approximation to holdup processes, thus forcing the rate to unreasonable heights.

A further continuation of the analysis of the causes of rate movements would unduly extend this article. What has already been presented seems adequate support for the following statements:

1. Fluctuation of rates on the New York market are wide and frequent, and tend to become more and more severe.
2. In a large measure they are due to currency movements, that to and from the interior being especially important.
3. Some of these currency movements occur with a considerable degree of regularity and are, therefore, capable of being foreseen and provided for; others, and these are frequently very important, are very irregular and uncertain and therefore cannot be foreseen and provided for.

<sup>17</sup> The week ending April 16 the average for call loans rose from 1¾ to 2¾ per cent. in spite of an increase in the surplus reserves, and the following week both the time and commercial-paper rates rose, even though the surplus reserves advanced to a considerably higher figure.

4. The influences to which rates are subject are varied and numerous. No single one can be regarded as dominant in the sense that at all times and normally it overshadows all the others.

5. Many of these influences are national and even international in scope, and therefore justify the application to the New York market of the adjective national, and warn against an apparently widespread belief that its ups and downs do not concern the entire country.

6. The currency situation revealed by the movements outlined and illustrated in the preceding pages calls for serious consideration from Congress and amply justifies the persistent demand for thoroughgoing reform.

WILLIAM A. SCOTT

UNIVERSITY OF WISCONSIN